Fig. 1

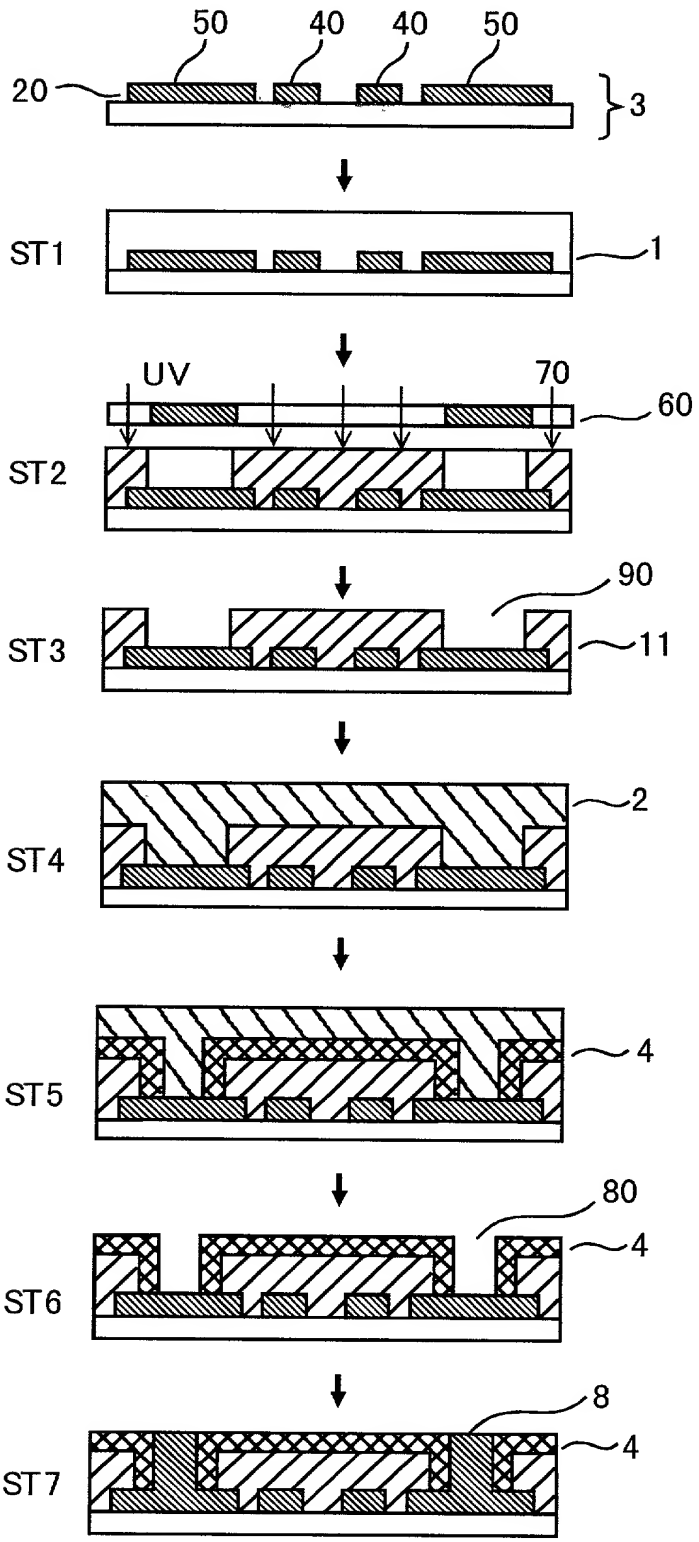
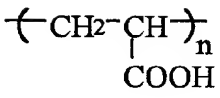
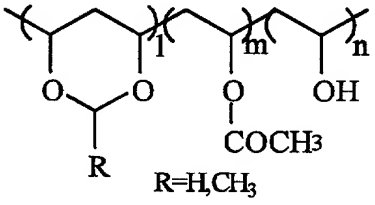

50
40
40
50
20
3
ST1
1
UV
70
60
ST2
90
ST3
11
2
ST4
4
ST5
80
4
ST6
8
4
ST7

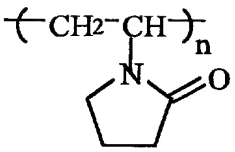
Fig.2



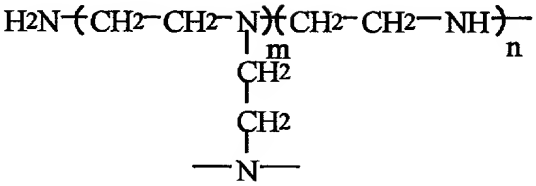
polyacrylic acid



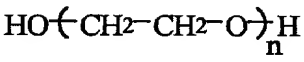
polyvinyl acetal



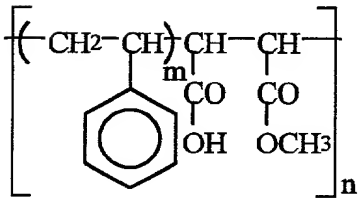
polyvinyl pyrrolidone



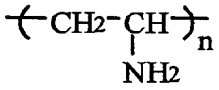
polyethyleneimine



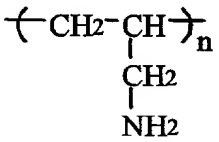
polyethylene oxide



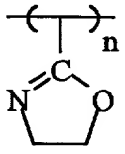
styrene–maleic acid copolymer



polyvinylamine resin

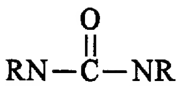


polyallylamine



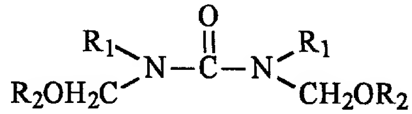
oxazoline group–containing
water–soluble resin

Fig.3



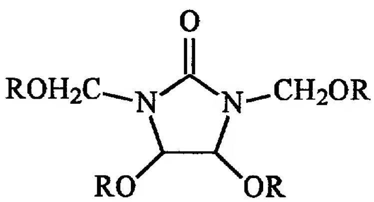
R=H,CH3,CH2OMe,CH2OEt

ureaderivatives



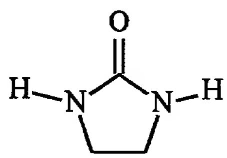
R1=H,CH3,CH2OMe,CH2OEt
R2=H,CH3,Et

alkoxymethylurea

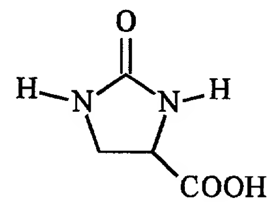


R=H,CH3,Et

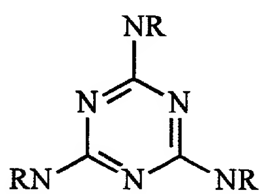
N–alkoxyethyleneurea



ethyleneurea

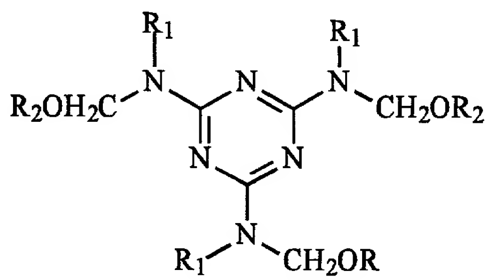


ethyleneureacarboxylic acid



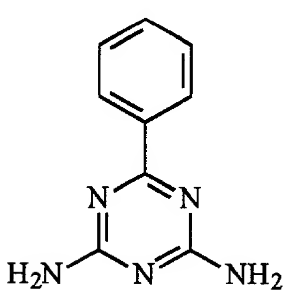
R=H,CH3,CH2OMe,CH2OEt

melamine derivatives

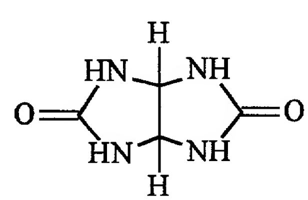


R1=H,CH3,CH2OMe,CHOEt
R2=H,CH3

alkoxymethylmelamine derivatives



benzoguanamine



glycoluril

Fig.4

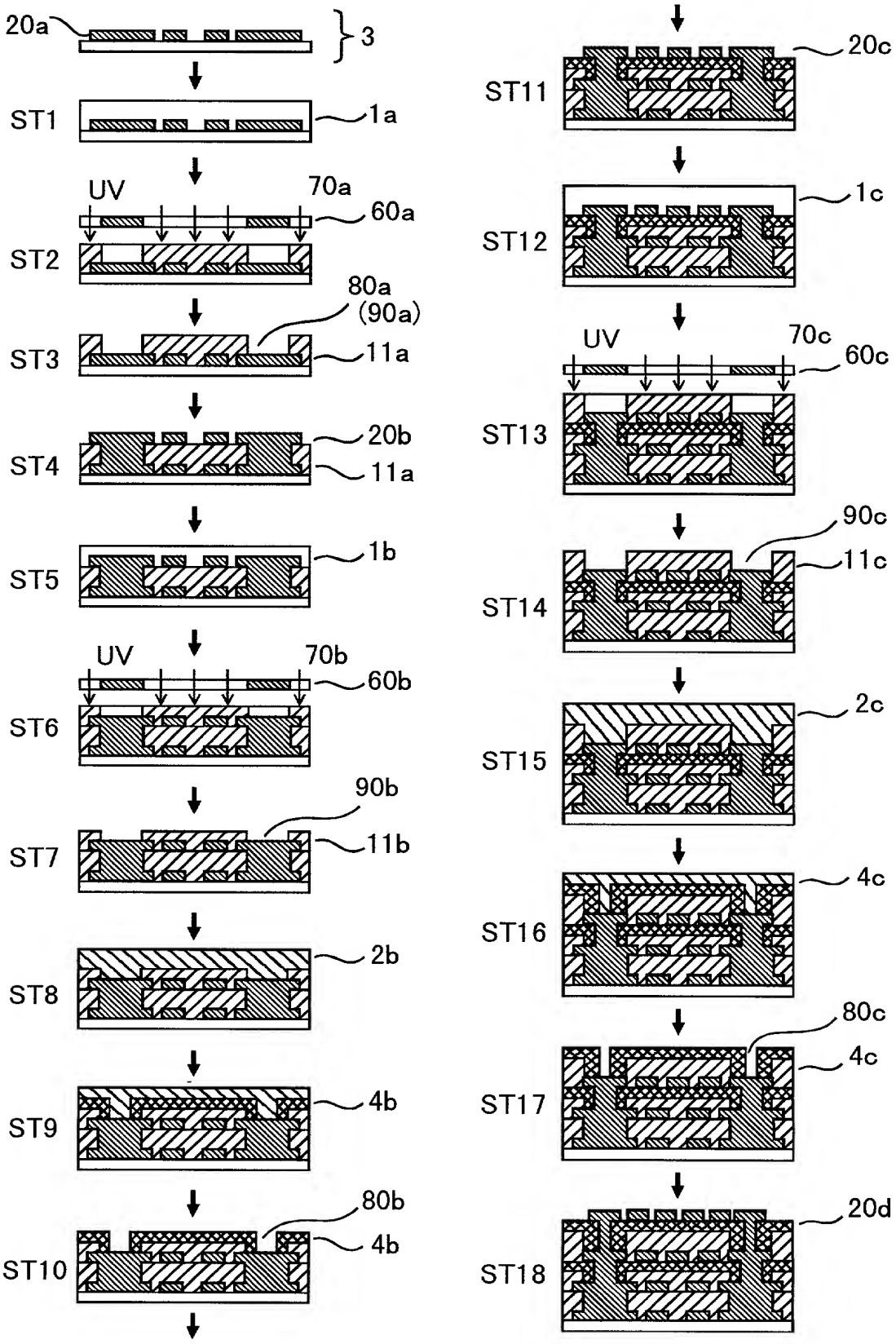

20a
3
ST1
1a
UV
70a
60a
ST2
80a
(90a)
ST3
11a
20b
ST4
11a
ST5
1b
UV
70b
60b
ST6
90b
ST7
11b
ST8
2b
ST9
4b
80b
ST10
4b
ST11
20c
ST12
1c
UV
70c
60c
ST13
90c
ST14
11c
ST15
2c
ST16
4c
80c
ST17
4c
ST18
20d

Fig.5

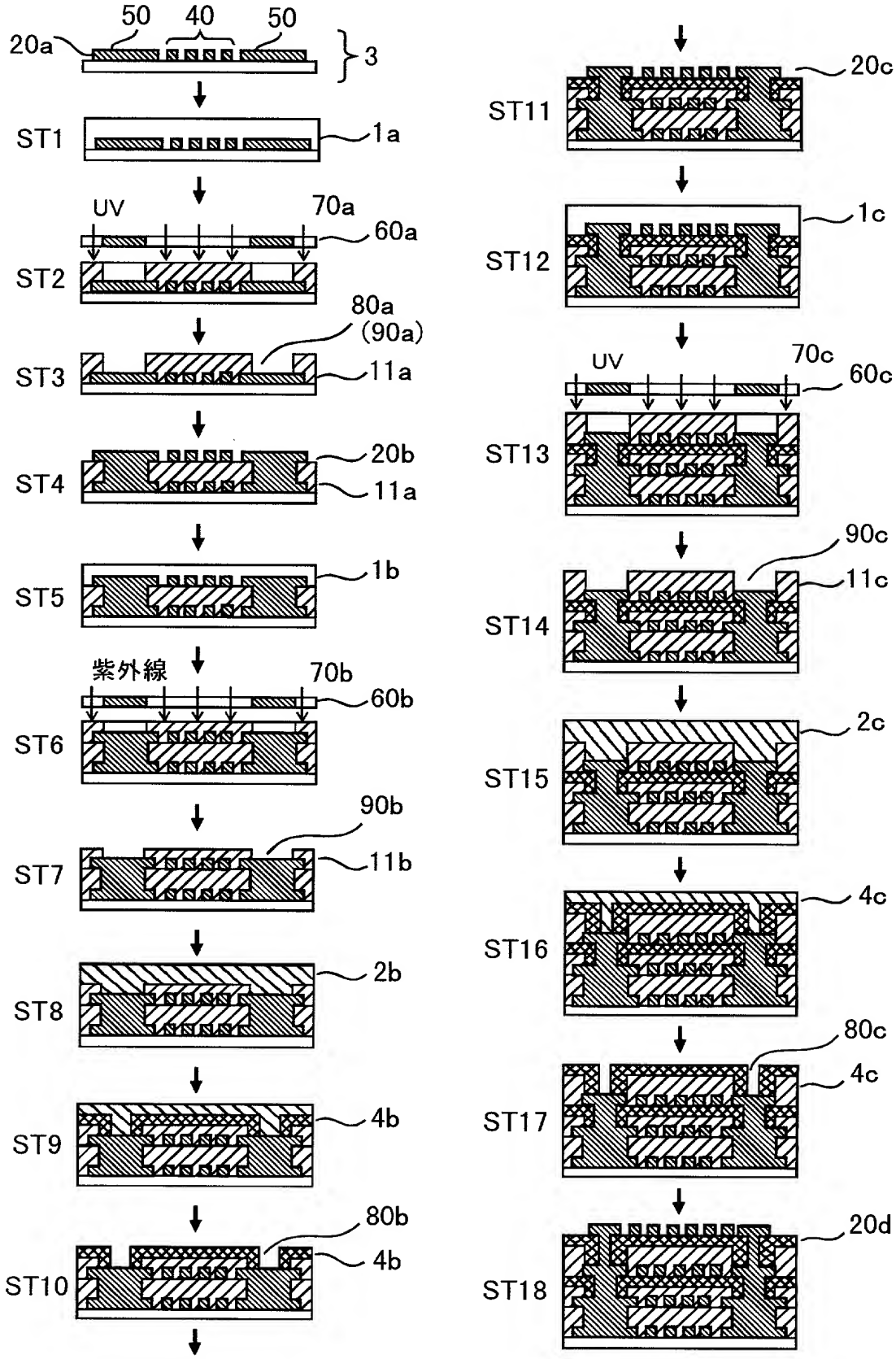

50
40
50
20a
3
ST1
1a
UV
70a
60a
ST2
80a
(90a)
ST3
11a
20b
ST4
11a
ST5
1b
紫外線
70b
60b
ST6
90b
ST7
11b
2b
ST8
ST9
4b
80b
ST10
4b
ST11
20c
ST12
1c
UV
70c
60c
ST13
90c
ST14
11c
2c
ST15
4c
ST16
80c
ST17
4c
20d
ST18

Fig.6

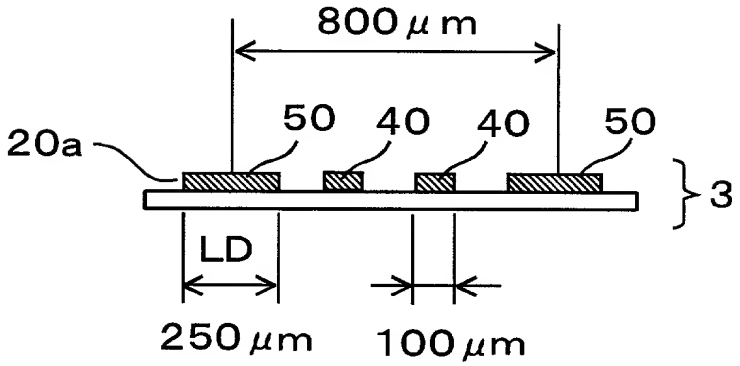


Fig.7

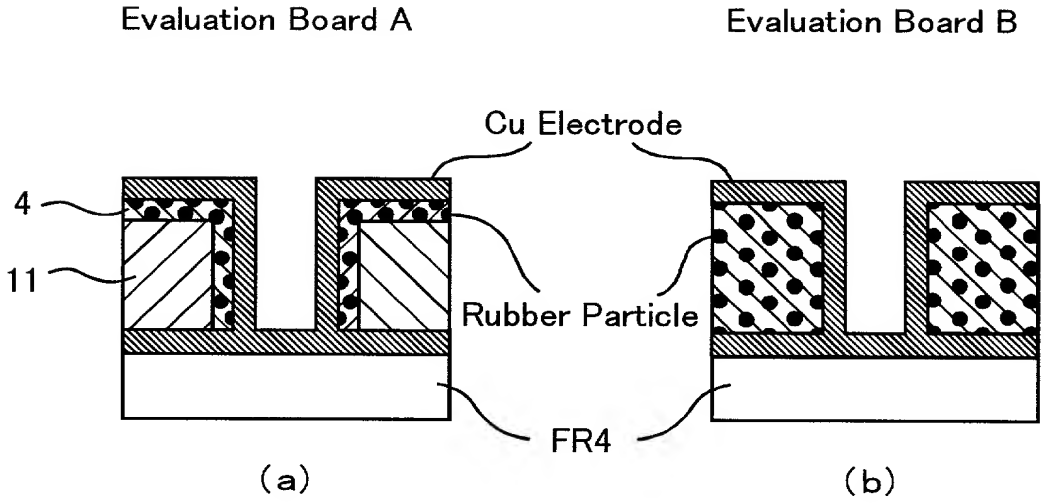

Evaluation Board A
Evaluation Board B
Cu Electrode
4
11
Rubber Particle
FR4
(a)
(b)

Fig.8
PRIOR ART

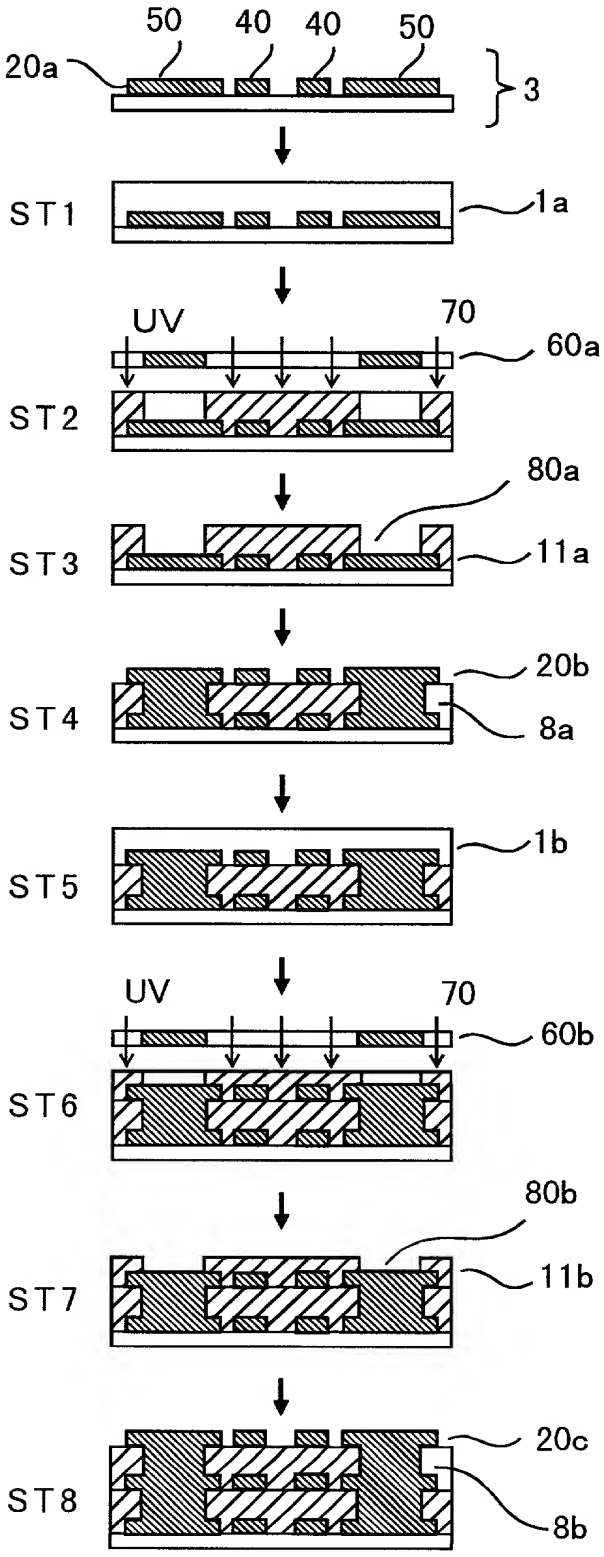


Table 1

Condition	Diameter of Via-Hole
Non Heat Treatment	150 μm
120℃／60min	130 μm
130℃／30min	100 μm
140℃／30min	70 μm

Table 2

Condition	Diameter of Via-Hole
Non Heat Treatment	150 μm
110℃／10min	120 μm
110℃／20min	100 μm
110℃／30min	80 μm
135℃／40min	40 μm

Table 3

Condition	Diameter of Via-Hole
Non Heat Treatment	150 μm
110℃／15min	120 μm
120℃／15min	100 μm
130℃／15min	80 μm
135℃／20min	45 μm

Table 4

Condition	Diameter of Via-Hole
Non Heat Treatment	100 μm
120℃／30min	96 μm
130℃／30min	90 μm
140℃／30min	83 μm

Table 5

Sample	Dielectric Constant (1kHz 25℃)	Thermal Expansion (Vertical 80～120℃)	Peel Strength (90° Peel 25℃)
Evaluation Board A	4. 5	40ppm	980kg／cm
Evaluation Board B	4. 8	55ppm	970kg／cm